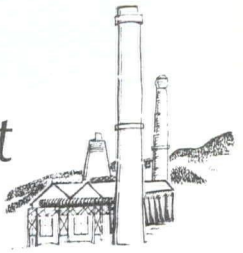
MARCH 1988

PROGRESS

East Helena Superfund Site Report

By Environmental Protection Agency & Montana Department of Health and Environmental Sciences



DEAR READERS,

The U.S. Environmental Protection Agency (EPA) and the Montana Department of Health and Environmental Sciences (MDHES) monitor the Superfund cleanup activities being conducted by ASARCO, Inc., at the East Helena smelter site. EPA and MDHES have prepared this progress report to inform East Helena area residents of work recently completed and upcoming activities at this Superfund site.

BACKGROUND

Last June, at a public meeting at the East Helena Fire Hall, EPA, MDHES and ASARCO explained the Superfund study process, summarized the findings of their preliminary studies of contamination at the site, and discussed what might be expected in the near future. The public meeting, which was attended by about 150 people, served the additional and equally important purpose of providing an opportunity for people to express their concerns.

Preliminary, or "Phase I" studies of water, soils, vegetation, and livestock, which were conducted from 1984 through 1986, showed arsenic and several heavy metals are present at significantly elevated levels in all four media tested. Moreover, Phase I studies showed the contamination is greatest on and near the smelter site. As few as four, and as many as 13, elements, all of which are defined by law as hazardous substances, were found in the media tested. The elements of greatest concern to EPA and MDHES at this site are arsenic, cadmium, and lead.

Due to the nature and extent of contamination found during Phase I, and in view of its potential for harming public health and the environment, more studies were clearly needed. Those studies, or "Phase II" investigations, have been conducted by ASARCO over the past eight months, in accordance with EPA's requirements for conducting such investigations at a Superfund site.

Phase I studies
Phase II studies

PHASE II REMEDIAL INVESTIGATIONS

* SOIL SAMPLING *

During Phase I studies, EPA collected and analyzed soil samples from 157 sites in the Helena Valley. Five of those sites were located within the East Helena residential area and their lab results prompted additional sampling at closer intervals within East Helena. Therefore, ASARCO conducted Phase II residential soil sampling in November. A thin layer of topsoil from 23 residential sites and playgrounds within a mile of the smelter, was collected and sent to a laboratory for analysis. In addition, ASARCO has collected

numerous soil samples from the smelter site. There, soils were collected at one foot intervals from the surface down to 10 feet or more because Phase I studies indicated that contamination is deeper on the smelter site.

* GARDEN VEGETABLES AND GRAIN SAMPLING *

Last August, ASARCO collected lettuce, chard, carrots, potatoes and tomatoes from 17 gardens, and grain (wheat) heads from approximately 40 fields, in the East Helena area. Three factors prompted this Phase II sampling effort:

1) Elevated levels of arsenic, cadmium, lead, and other elements were found in soils near the smelter during Phase I studies;
2) The amount of arsenic, cadmium, lead and other elements, when found in plant tissue, is often dependent upon the amount of those elements in the soils from which the plants extract their nutrients; and
3) Many East Helena area residents grow and consume their own garden vegetables and grain.

The Phase II garden vegetable and grain sampling efforts will enable EPA, MDHES, and ASARCO to determine whether people who eat vegetables or grain grown in the area, over an extended period, face unacceptable health risks.

A consulting firm working for ASARCO, MDI, Inc., recently sent to East Helena area residents a survey of garden use. The information will be used to help ASARCO determine possible health risks associated with eating garden vegetables.

* LIVESTOCK TISSUE SAMPLING *

Phase I studies of the blood and hair of cattle raised in the Helena Valley indicated that arsenic, cadmium, lead and zinc were present at elevated levels in a significant number of test animals. Therefore, as part of Phase II, ASARCO recently purchased and slaughtered 12 cows from two separate herds raised near the smelter and six other cows from the Townsend area. The six cows from the Townsend area were control animals to be used for comparison. ASARCO will analyze muscle tissue and other edible parts for arsenic, cadmium, lead and zinc. As in the case of garden vegetables and grain grown and eaten by residents of the East Helena area, results of ASARCO's Phase II livestock tissue sampling effort will allow an accurate measure of any risk that may accompany a prolonged diet of beef raised near the smelter.

* GROUNDWATER MONITORING WELLS *

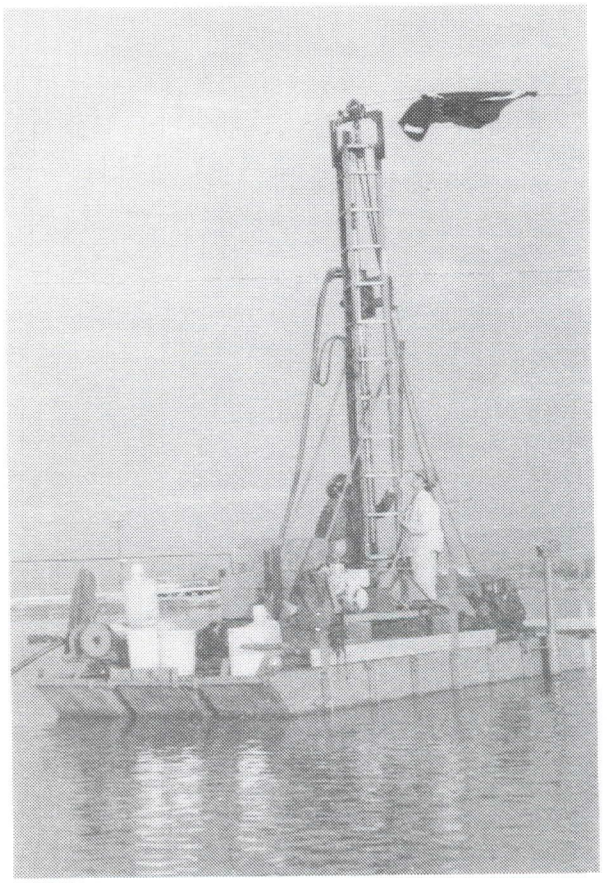
ASARCO recently drilled 15 new wells, both on and off the smelter site. These wells are in addition to 30 wells drilled during Phase I studies. The earlier work revealed that contaminated groundwater has migrated north of the smelter site and into the East Helena residential area. One of the shallow monitoring wells, which is located east of Prickly Pear Creek and within Memorial Park, for example, has shown arsenic to be greater than 1,000 micrograms per liter. That is 20 times the maximum level of arsenic allowed by federal law in a community water supply, or 50 micrograms per liter. Two other shallow monitoring wells, which are located west of the creek and within the residential area, show similarly high levels of arsenic are present there also.

While most residents of East Helena receive their water from a municipal water system, a few obtain water from private domestic wells. Thus far, none

lead in to mentioning process pond - source

owners of private domestic wells have been notified by EPA & DHES of lab results and standards have been explained.

of the private domestic wells being tested has been found to have arsenic in excess of 50 micrograms per liter. However, at least two have been bumping up against that standard. Therefore, East Helena area residents who continue to use a private domestic well and those who have plans to drill a well are advised to have their water tested regularly. When ASARCO receives results of laboratory analyses of the remaining groundwater samples, alternatives will be developed for stopping the migration of contamination and cleanup of the groundwater. ASARCO expects to develop possible cleanup alternatives early this spring.



Employees of Hydrometrics, ASARCO's consulting firm, sample sediment under the Lower Lake process pond on the smelter site. Pictured are Bob Miller and Walter Crane.

* OTHER PHASE II STUDIES *

Other Phase II investigations that have been conducted or are proceeding include the following:

-- Surface water quality monitoring (Prickly Pear Creek)
-- Fish sampling (trout from Prickly Pear Creek)
-- Sediment sampling (Wilson irrigation ditch)
-- Process fluids and process pond water and sediment sampling

Results of these investigations will be summarized in later progress reports. Another public meeting is planned for June 1988. The public will be notified when a date and time are selected.

If you have any questions or comments concerning Superfund activities at the East Helena site, please call or visit EPA (449-5414), Doug Rogness or Janie Stiles with MDHES (444-2970 or 1-800-648-8465) or Jon Nickel at ASARCO (227-7160).

Scott Brown?

EPA encourages responsible parties to conduct remedial investigations and feasibility studies. ASARCO has demonstrated that it is quite capable of conducting the studies and has cooperated completely. Committed. - residue -